

REMARKS

Prior to this communication, claims 1-4, 7-16, 19-42, and 45-58 are pending in the application. In this Amendment, Applicants are canceling claims 4-6, 9, 17-19, 27, 30, 31, 33, 42-44, 47, and 55; and amending claims 1-3, 7, 15, 16, 20, 22-26, 34-40, 45, 53, 54, and 58. Reexamination and reconsideration in view of the amendments and remarks contained herein are requested.

The Office objected to claims 7, 19, 34, and 45, indicating these claims include allowable subject matter.

The Office objected to the drawings under 37 C.F.R. § 1.83(a), asserting that the drawings do not show every feature of the invention specified in the claims. Applicants either cancelled the following limitations from the claims or cancelled the claims having the following limitations: “duty cycle”, “two power switches”, “dc bus voltage”, “half bridge”, “stator”, and “rotor”. Applicants traverse the objection with regard to the following limitations: “power inputs”, “first voltage input”, “second voltage input”, “first node”, and “second node.”

37 C.F.R. § 1.83(a) is repeated below for the Examiner’s reference.

(a) The drawing in a nonprovisional application must show every feature of the invention specified in the claims. However, conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation (e.g., a labeled rectangular box).

Applicants assert that the non-cancelled limitations are shown in the drawings. For example, the power inputs, in one construction of the invention, can be the inputs provided to switch 149; the first and second voltage inputs, in one construction of the invention, can be the inputs labeled H and L; the first and second nodes, in one construction of the invention, can be the nodes connected to summing module 136. 37 C.F.R. § 1.83(a) does not require every feature of the invention to be labeled with a reference number in the drawings. Accordingly, Applicants request withdrawal of the objection.

The office objected to the specification as failing to provide proper antecedent basis for the terms “first voltage input” and “second voltage input.” Applicants traverse this objection as believing someone skilled in the art would find the terms clearly supported by the specification. See 37 C.F.R. § 1.75(d)(1). However, in the interest of furthering prosecution of the application, Applicants amended paragraph [0014] to make clear that there is antecedent basis for the terms. Applicants assert no new matter was added. Accordingly, Applicants request withdrawal of the objection.

The Office rejected claims 23, 35, and 37 under 35 U.S.C. § 112, ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Applicants amended claims 23, 35, and 37 to correct the dependency of those claims. Accordingly, Applicants request withdrawal of the rejection.

Applicants amended objected to claim 7 into independent form including all of the limitations of the base and any intervening claims. Accordingly, Applicants request allowance of claim 7.

Applicants amended claim 1 to incorporate some of the limitations of claims 4 and 7 into claim 1 and restructured the amended limitations. Applicants assert that U.S. Patent No. 6,172,476 (Tolbert) and U.S. Patent No. 4,566,289 (Iizuka) do not teach or suggest a controller for an electric machine, the controller comprising, among the other limitations of claim 1, a module coupled to the first and second voltage inputs to receive the first and second voltages, and configured to generate different signals representing the receipt of the first and second voltages; and a micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the first voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch. Accordingly, Applicants assert amended claim 1 is allowable and requests the Office to indicate the same.

Claims 2, 3, 8, and 10-14 depend, either directly or indirectly, from claim 1, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 1. Therefore, claims 2, 3, 8, and 10-14 are allowable. Further, Applicants assert claims 2,

3, 8, and 10-14 specify additional limitations that, in combination with claim 1, are believed to be patentable.

The Office has indicated that claim 19 includes allowable subject matter. Applicants have incorporated most of the verbiage of claim 19 into claim 15. Applicants assert that neither the Iizuka reference nor U.S. Patent No. 6,570,778 (Lipo) teaches or suggests claim 15 as a result of the amendment. Applicants also assert, contrary to the Examiner's position, that the references do not teach or suggest, among other limitations, "a relay module coupled to the voltage input, and configured to relay the first voltage and to generate a second voltage; and an inverter coupled to the relay module, and configured to be activated by the second voltage, and to generate a frequency-regulated voltage." Accordingly, Applicants assert amended claim 15 is allowable and requests the Office to indicate the same.

Claims 16 and 20-25 depend, either directly or indirectly, from claim 15, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 15. Therefore, claims 16 and 20-25 are allowable. Further, Applicants assert claims 16 and 20-25 specify additional limitations that, in combination with claim 15, are believed to be patentable.

The Office has indicated that claim 34 includes allowable subject matter. Applicants amended claim 26 to incorporate some of the limitations of claims 33 and 34 into claim 26. Applicants assert that neither the Tolbert nor the Lipo references teaches or suggests amended claim 26. Accordingly, Applicants assert amended claim 26 is allowable and requests the Office to indicate the same.

Claims 28, 29, 32, and 34-38 depend, either directly or indirectly, from claim 26, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 26. Therefore, claims 28, 29, 32, and 34-38 are allowable. Further, Applicants assert claims 28, 29, 32, and 34-38 specify additional limitations that, in combination with claim 26, are believed to be patentable.

Applicants amended objected to claim 45 into independent form including all of the limitations of the base and any intervening claims. Accordingly, Applicants request allowance of claim 45.

Applicants amended claim 39 to incorporate some of the limitations of claims 42 and 45 into claim 39 and restructured the amended limitations. Applicants assert that none of the Tolbert, Iizuka, and Lipo references teaches or suggests a controller for an electric machine, the controller comprising, among the other limitations of claim 39, a module configured to receive the first and second voltages and to generate different signals to represent the receipt of the first and second voltages; and a micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the second voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch. Accordingly, Applicants assert amended claim 39 is allowable and requests the Office to indicate the same.

Claims 40, 41, 46, and 48-52 depend, either directly or indirectly, from claim 39, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 39. Therefore, claims 40, 41, 46, and 48-52 are allowable. Further, Applicants assert claims 40, 41, 46, and 48-52 specify additional limitations that, in combination with claim 39, are believed to be patentable.

Amended claim 53 is repeated below for the Examiner's reference.

53. (Currently amended) A method of controlling a motor using a controller, the method comprising:
receiving a power at a relay;
controlling the relay to apply the power to a first node of the controller;
controlling the relay to apply the power to a second node of the controller;
detecting whether the power is present at the first node of the controller;
detecting whether the power is present at the second node of the controller;
generating at least one signal based at least in part on the detecting acts; and
using a detected power to energize the motor when the at least one signal indicates power is present at at least one of the first node, and the second node.

Claim 53 stands rejected as being anticipated by the Iizuka reference and the Lipo reference. With regard to the Iizuk reference, Applicants assert the reference does not teach or

suggest a method of controlling a motor using a controller, the method comprising, among the other limitations of claim 53, receiving a power at a relay; controlling the relay to apply the power to a first node (or a second node) of the controller; detecting whether the power is present at the first node (or the second node) of the controller; and using the detected power to energize the motor. Instead the Iizuka reference discloses, “The control section 11 produces the mode signal [which controls switches 3 and 9] in the presence of the external signal and the pulse signal supplied from the voltage detector 14.” Col. 2, lines 56-61. Therefore, the Iizuka reference does not teach or suggest claim 53.

For the Lipo reference, Applicants assert the reference also does not teach or suggest a method of controlling a motor using a controller, the method comprising, among the other limitations of claim 53, receiving a power at a relay; controlling the relay to apply the power to a first node (or a second node) of the controller; detecting whether the power is present at the first node (or the second node) of the controller; and using the detected power to energize the motor. Instead the Lipo reference discloses “an adjustable speed drive for single-phase induction motors.” Abstract. The controller 55 operates the inverter 30. See, e.g., col. 5, lines 56-62. “When operation at a lower speed is desired, the operator provides a command to the controller 55 . . .” Col. 5, line 62 to col. 6, line 2. Therefore, the Lipo reference does not teach or suggest claim 53.

Accordingly, Applicants assert amended claim 53 is allowable and requests the Office to indicate the same.

Claims 54, 56, and 57 depend, either directly or indirectly, from claim 53, and consequently, include patentable subject matter for the reasons set forth above with respect to claim 53. Therefore, claims 54, 56, and 57 are allowable. Further, Applicants assert claims 54, 56, and 57 specify additional limitations that, in combination with claim 1, are believed to be patentable.

Amended claim 58 is repeated below for the Examiner’s reference.

58. (Currently amended) A system comprising:
a motor;

a relay connectable to a power supply to receive a power of the power supply, and controllable to provide a first power and a second power, the first and second powers having a relation to the power; and

a controller electrically connected to the motor and the relay, the controller comprising:

a first node configured to receive the first power;

a second node configured to receive the second power;

a first circuit configured to detect whether the first power is present at the first node of the controller, detect whether the second power is present at the second node, and generate at least one signal, the at least one signal being representative of whether the first power is present at the first node and whether the second power is present at the second node,

a second circuit configured to receive the at least one signal and generate a switch control signal, and

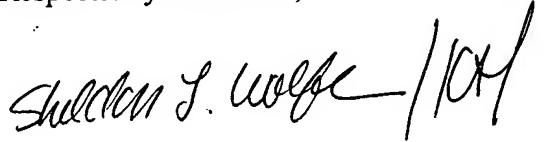
a switch configured to selectively energize the motor based at least in part on the switch control signal, the switch using at least one of the first power, and the second power to energize the motor when the at least one signal indicates at least one of the first power is present at the first node, and the second power is present at the second node.

Claim 58 stands rejected as being anticipated by the Iizuka reference. Applicants assert the Iizuka reference does not teach or suggest a system comprising, among the other limitations of claim 58, a relay controllable to provide a first power and a second power; and a controller comprising a first circuit configured to detect whether the first power is present at a first node of the controller, detect whether the second power is present at a second node and generate at least one signal representative of whether the first power is present at the first node and whether the second power is present at the second node, where the at least one signal controls the energization of a motor with the first and second powers. Instead the Iizuka reference discloses, “The control section 11 produces the mode signal [which controls switches 3 and 9] in the presence of the external signal and the pulse signal supplied from the voltage detector 14.” Col. 2, lines 56-61. Therefore, the Iizuka reference does not teach or suggest claim 58. Accordingly, Applicants assert amended claim 58 is allowable and requests the Office to indicate the same.

CONCLUSION

Entry of the Amendment and allowance of the pending claims are respectfully requested. The undersigned is available for telephone consultation at any time during normal business hours.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Sheldon L. Wolfe 104".

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